

Remarks

In the Office Action mailed on September 12, 2000 the Examiner finally rejected claims 1-10, 14, 15 and 16. As a result, claims 1 and 7 have again been amended. The reconsideration of this application and the rejected claims in view of the amendments made thereto and these remarks is respectfully requested.

In the Office Action, the Examiner rejected claims 1-4, 6-8 and 10 under 35 U.S.C. §103(a) as being unpatentable over Takehara et al.; rejected claims 5 and 9 under 35 U.S.C. §103(a) as being unpatentable over Takehara et al. and further in view of Riggs, Jr.; and rejected claims 14, 15 and 16 under 35 U.S.C. §102(e) as anticipated by or in the alternative, under 35 U.S.C. §103(a) as obvious over Takehara et al., all for the reasons given in the previous Office Action.

Independent claims 1 and 7 have both been amended to call for "the amount of sulfuric acid in said electrolyte solution being greater than 1.6 times the amount of manganese ion therein. Claims 2-6 are all dependent from claim 1 and claims 8-10 are dependent from claim 7. It is respectfully submitted by the Applicants that the amendments to claims 1 and 7 do not constitute new matter and are proper in that it is stated in the specification that the concentration of the sulfuric acid in the electrolytic solution is maintained at a level greater than or equal to 1.2 times the concentration of manganese ion therein.

In support of the rejection of claims 1-4, 6-8 and 10, the Examiner stated that Takehara et al. do not teach any specific relationship between the amounts of sulfuric acid and manganese ions in solution, and that one of ordinary skill in the art could pick the amount of sulfuric acid to be used at the higher end of the range disclosed by Takehara et al. and pick the amount of manganese ion from the lower end of the range disclosed by Takehara et al., and if so, the ratio

of the amount of sulfuric acid to manganese ion in the electrolyte of Takehara et al. would be greater than 1.2 to 1.

In describing and claiming their invention, Takehara et al. indicated that the electrolyte solution sulfuric acid concentration should range from 29.4 to 44.1 grams per liter and the manganese sulfate concentration should range from 27.5 to 55 grams per liter. Thus, the highest sulfuric acid concentration disclosed and claimed by Takehara et al. is 44.1 grams per liter and the lowest manganese sulfate concentration is 27.5 grams per liter. Thus, the highest ratio of sulfuric acid to manganese ions disclosed by Takehara et al. is 1.6 to 1.

Since independent claims 1 and 7 have been amended to call for "the amount of sulfuric acid in said electrolyte solution being greater than 1.6 times the amount of manganese ion therein," it is respectfully submitted that claims 1 and 7 are patentably distinguished from Takehara et al. and would not be obvious to one skilled in the art at the time the invention was made. At most, the Takehara et al. patent might make it obvious to try an electrolyte solution containing a higher ratio of sulfuric acid to manganese ions in the electrolyte solution. However, a rejection based on the opinion of the Examiner that it would be "obvious to try" a chemical (or quantity of a chemical) used in the claimed process does not meet the requirement of 35 U.S.C. §103 that the issue of obviousness be based on the subject matter as a whole. See, e. g., In re Yates, 211 U.S.P.Q. 1149 (C.C.P.A. 1981); and Jones v. Hardy, 220 U.S.P.Q. 1021 (Fed. Cir. 1984).

It is respectfully submitted that independent claims 1 and 7 and dependent claims 2-6 and 8-10 are patentably distinguished from the Takehara et al. patent, particularly in view of the unexpected results achieved by the present invention as compared to the prior art including

Takehara et al. as shown in Table III at page 31 of the above referenced application. Further, it is respectfully submitted that such claims should now be allowed.

In the Office Action, the Examiner rejected claims 5 and 9 under 35 U.S.C. §103(a) as being unpatentable over Takehara et al. as applied to claims 1-4, 6-8 and 10 and further in view of Riggs, Jr. Riggs, Jr. discloses a method for producing EMD in which cathodes fabricated from copper and alloying amounts of other metals are used. However, it is respectfully submitted by the Applicants that claims 5 and 9 are now allowable in view of the amendments made to independent claims 1 and 7 from which they depend, and consequently, claims 5 and 9 should also be allowed.

Claims 14-16 were rejected by the Examiner under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Takehara et al. for the reasons given in the previous Office Action. In the previous Office Action the Examiner stated that "it is not apparent that the electrolytic manganese dioxide of these claims differs from that disclosed by Takehara et al." In response to that reason, claims 14-16 were amended to specifically call for EMD produced by the methods of claims 1, 7 and 11, respectively, having a discharge capacity of about 68.2 mAh/g at a discharge rate of 1 Watt. Thus, the amended claims call for EMD produced by the methods set forth in amended claims 1 and 7 and in allowed claim 11 and having the unexpected discharge capacity produced by the present invention. Thus, it is respectfully submitted that claims 14-16 are also patentably distinguished from Takehara et al. and should now be allowed.

The Examiner previously allowed independent claim 11 and dependent claims 12 and 13. It is respectfully submitted by the Applicants that the amendments made herein make claims 1-

10 and 14-16 allowable, and that the Examiner should enter this amendment and allow claims 1-10 and 14-16.

This is intended to be a complete response to the Office Action mailed on September 12, 2000.

Respectfully submitted,

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